N93-15035

MESA
Archival Systems, Inc.

NSSDC Mass Storage Workshop

July 23-25, 1991

Data Archiving
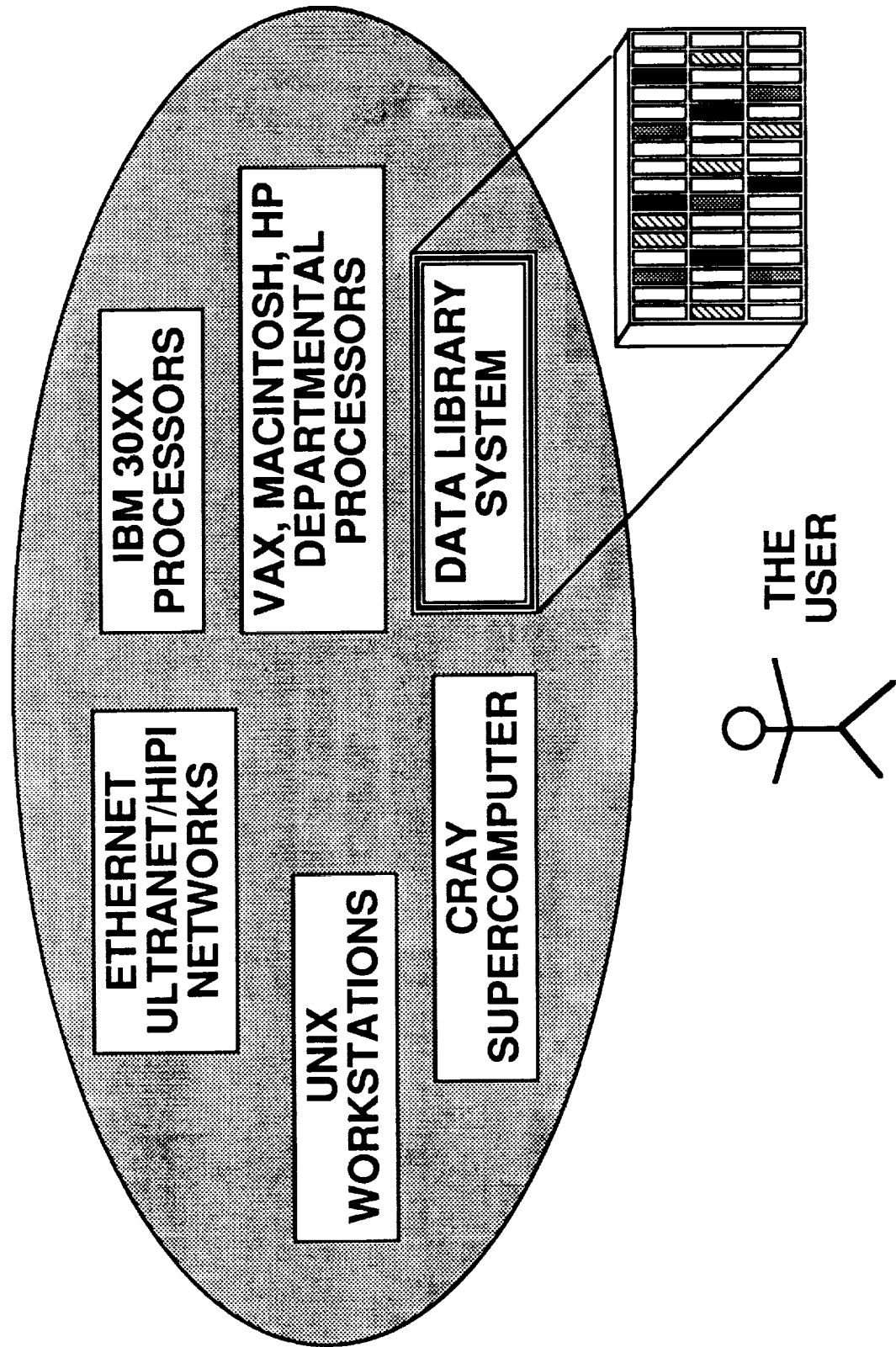
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Computing Environment

IBM 30XX PROCESSORS

VAX, MACINTOSH, HP DEPARTMENTAL PROCESSORS

DATA LIBRARY SYSTEM

ETHERNET ULTRANET/HIPI NETWORKS

UNIX WORKSTATIONS

CRAY SUPERCOMPUTER

THE USER

NATIONAL CENTER FOR ATMOSPHERIC RESEARCH (NCAR)

Atmospheric and oceanographic research

Inititiator of IEEE Storage Model

Status

- Operational since 1986

- 4,000 users

- 82,000 3480 cartridges 11/90

- ~15 TB, growing at 6 TB/year with Y/MP

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Product Goals

Designed for change

System availability

Commercial support

Standard products

Client System
Users ———— files

Network

Unix Interface —→

Archival System ———— permanent file storage

Data Library System

DLS Environment

HELICAL SCAN

CARTRIDGE TAPE

OPTICAL DISK

MAGNETIC DISK

Storage
Options

THE
DATA
LIBRARY

FTP

NETWORK

THE
USER
COMPUTER

Disk
Storage

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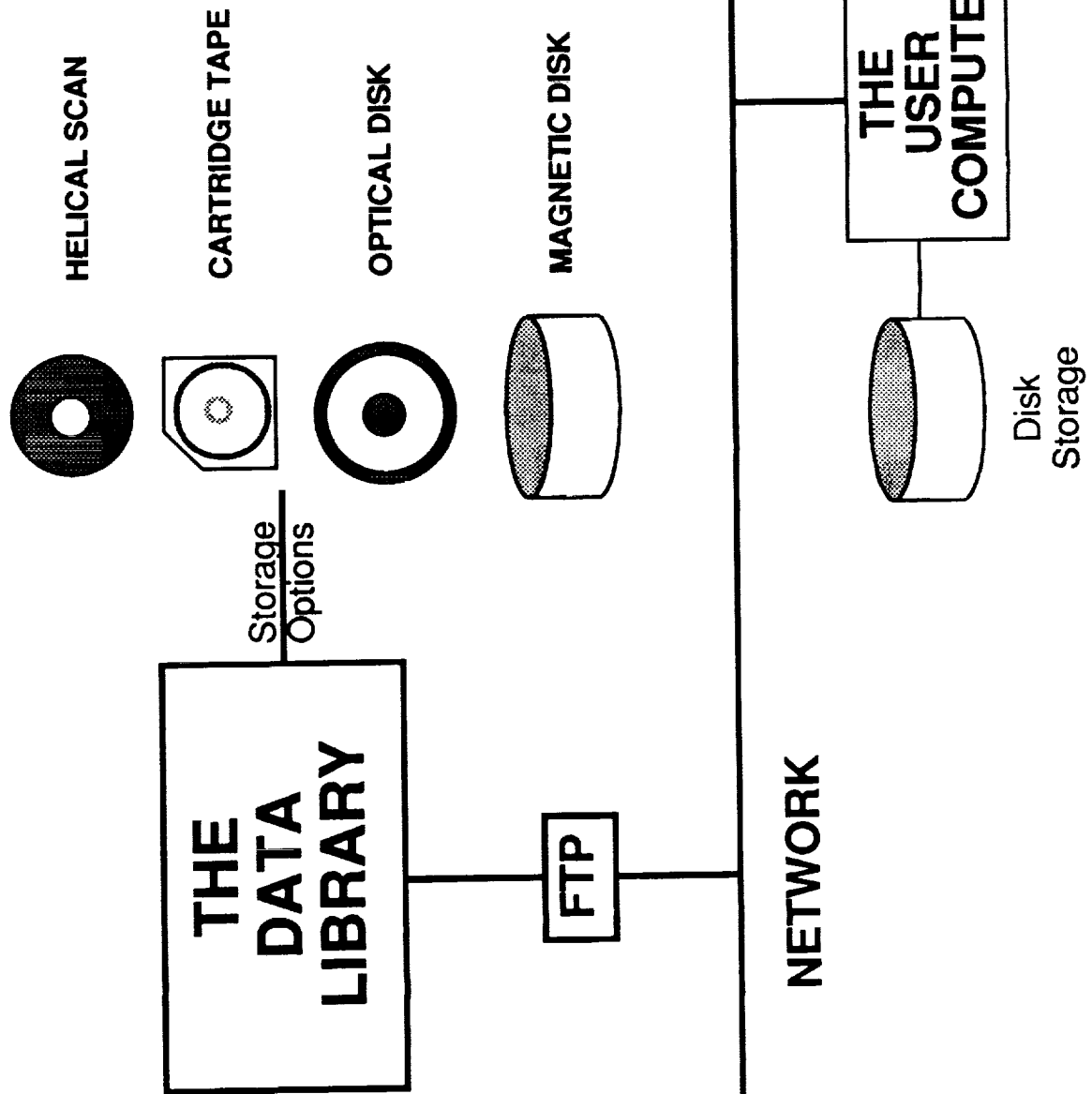
Client System Commands

FTP Interface

- *GET*
- *PUT*
- *DIR*
- *LS*
- *RENAME*

Other

- *USER ACCESS*
- *IMPORT / EXPORT*

Networks

Protocols

- **FTP, User Access**
- **TCP/IP, NETEX**

Networks

- **Ethernet**
- **Ultranet**
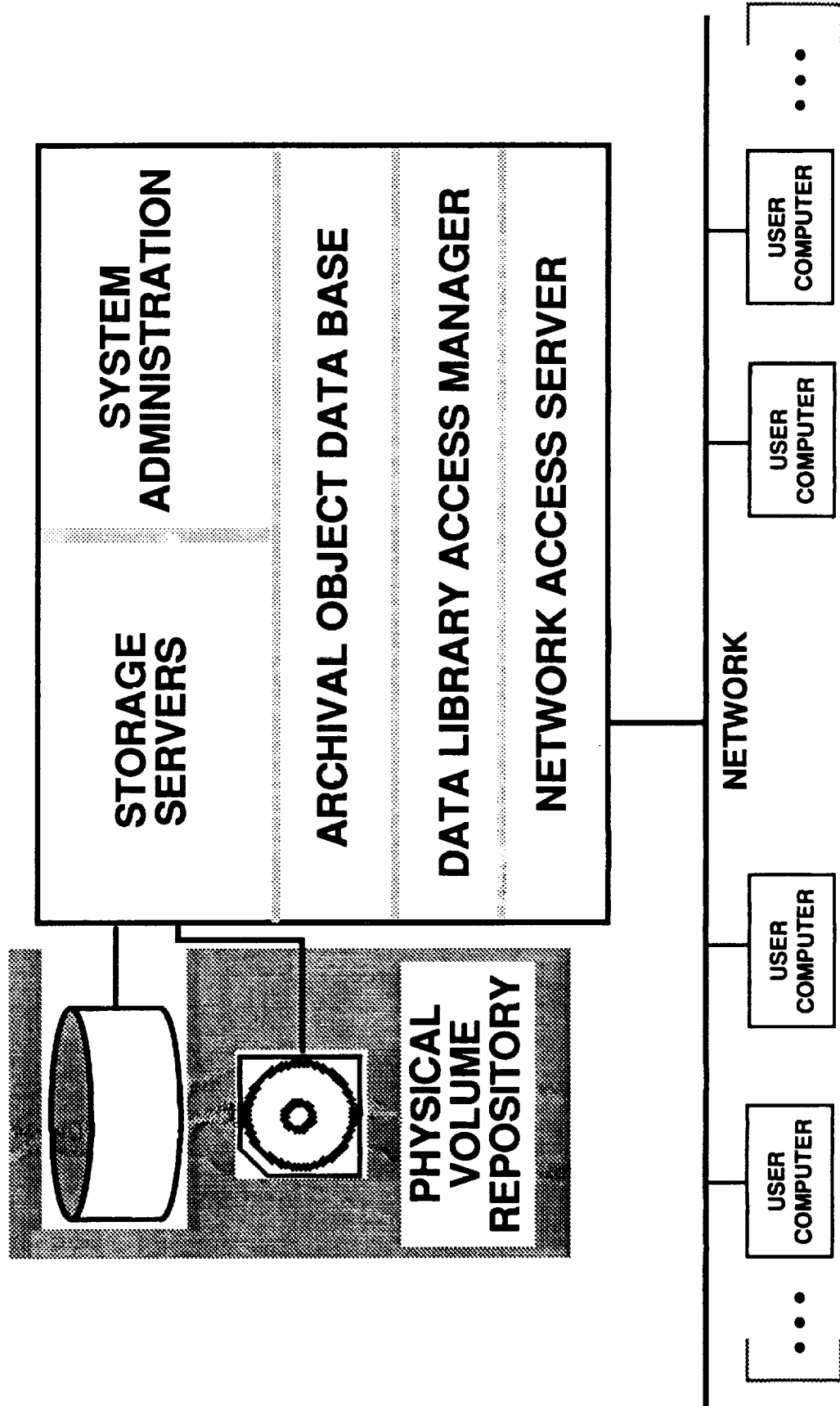- **HYPERchannel**

Archival Devices

- IBM 3480/90 Cartridge Tape

- STK 4400 Cartridge Tape Robot

- MTC 5400 Automated Tape Library

- DataWare Optical Disk

- Masstor Helical Scan Tape

DLS Features

- Modular implementation

- Multiple media support

- Resource accounting

- Security (Client - POSIX, System - MVS)

Data Library System

SYSTEM ADMINISTRATION

STORAGE SERVERS

ARCHIVAL OBJECT DATA BASE

DATA LIBRARY ACCESS MANAGER

NETWORK ACCESS SERVER

PHYSICAL VOLUME REPOSITORY

NETWORK

USER COMPUTER

USER COMPUTER

USER COMPUTER

USER COMPUTER
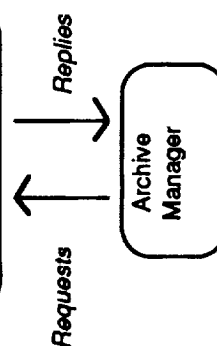
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Data Library System

- **Network Access Servers**
  - FTP or User Access
  - Unix File System appearance
  - Gateway to DLS

- **Archival Object Data Base (AODB)**
  - Powerful Facilities
  - Object Orientation

- **Storage Servers**
  - Uniquely Mounted Media
  - Variably Mounted Media

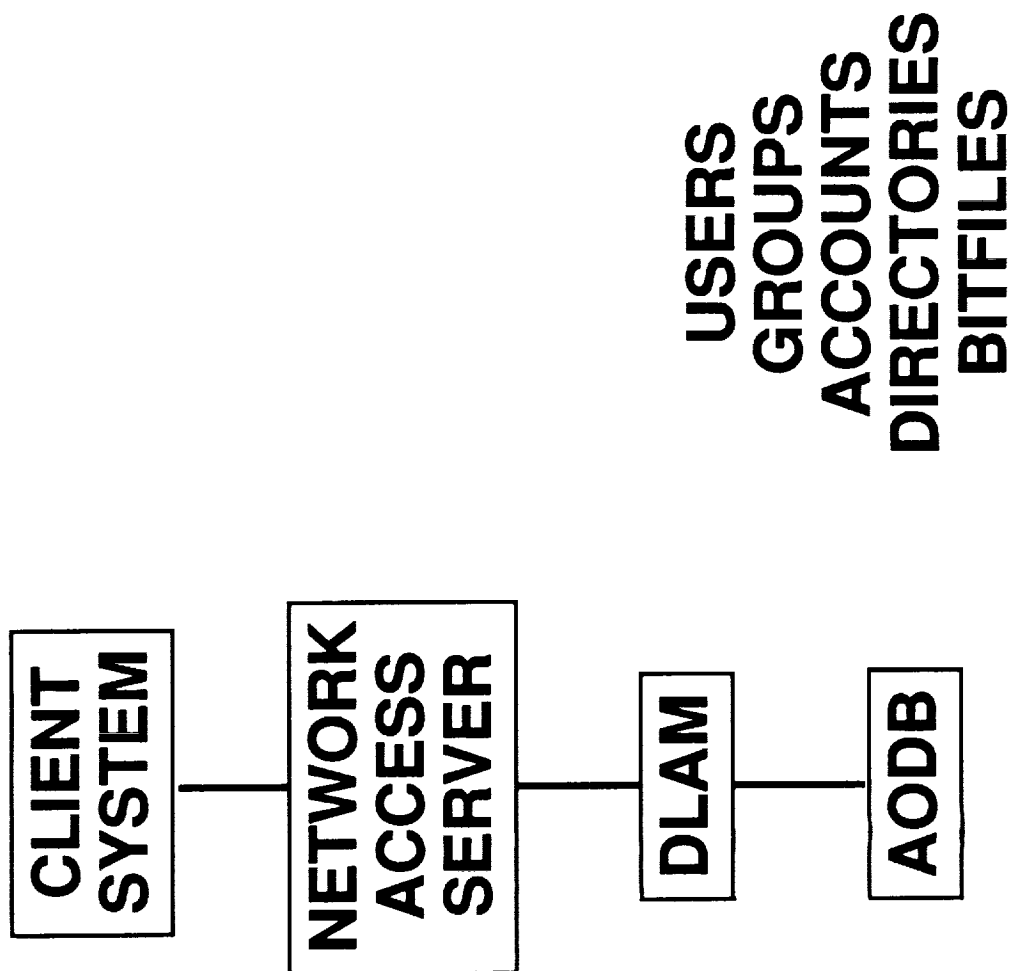- **System Administration**
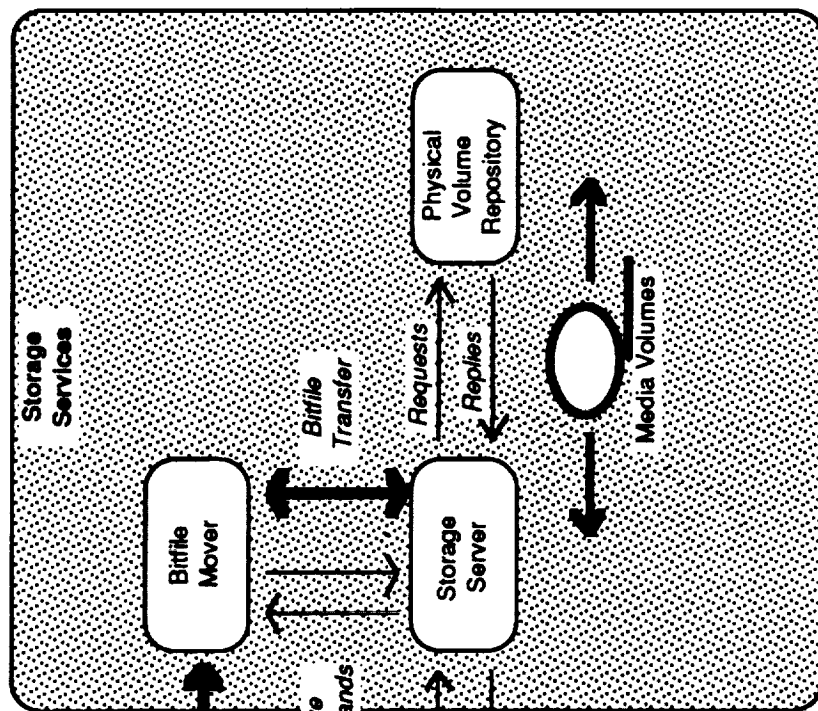
STORAGE SYSTEM

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CLIENT APPLICATION SYSTEM

Client Application System

```
┌──────────────┐
│   CLIENT     │
│   SYSTEM     │
└──────┬───────┘
       │
┌──────┴───────┐
│  NETWORK     │
│  ACCESS      │
│  SERVER      │
└──────┬───────┘
       │
   ┌───┴───┐
   │ DLAM  │
   └───┬───┘
       │
   ┌───┴───┐
   │ AODB  │
   └───────┘
```

USERS
GROUPS
ACCOUNTS
DIRECTORIES
BITFILES

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Storage System